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ABSTRACT

A study examined the feasibility of adopting National Occupational Competency Testing Institute (NOCTI) examinations for use by completers of vocational programs in Florida comprehensive high schools. A total of 34 candidates in five occupational areas (architectural drafting, carpentry, plumbing, small engine repair, and welding) at four comprehensive high schools were given NOCTI tests. Scores revealed that the students could have come from a population of journeymen based on their performance tests. However, with the exception of small engine repair, student scores in the related information area appear weak. On four of the performance tests and one of the written exams the average student scores were high enough to meet Florida teacher standards. In programs tested, the average performance score achieved by students in comprehensive high schools on five exams exceeded by a substantial margin the average scores achieved by area vocational technical students. Analysis of student scores suggests that with the exception of the performance exam for carpentry, the other performance exams might be usable. Also, while the written exam for small engine repair seemed appropriate for high school use, all other written exams appeared too comprehensive for vocational preparatory students. (MN)

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ED204542

FINAL REPORT

Project No. DVE 9-1C11

April 9, 1979 to June 30, 1980

VALIDATION OF NOCTI INSTRUMENTS USING VOCATIONAL EDUCATION COMPLETERS OF FLORIDA COMPREHENSIVE HIGH SCHOOLS

UNIVERSITY OF SOUTH FLORIDA
College of Education
Department of Adult and Vocational Education
Tampa, Florida 33620

By
Raymond Hill
Project Director

Raymond S. Klein
Project Consultant

CE 029 452

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The researchers wish to acknowledge the contribution of the vocational administrators, teachers and students at selected Florida High Schools who participated in this study. Without their willing participation, this study could not have been conducted.

Also, recognition is extended to Roy Giehls of the Florida Department of Education for his continuing support and outstanding understanding and to Joe Mills for his inspiration and leadership.

This project was a follow-up of more comprehensive study entitled, "An Exemplary Project to Field Test NOCTI Examination with Completers from Area Vocational Technical Centers in Florida" - March 1, 1978 to September 30, 1978. Readers of this study are referred back to this original document for additional details.

The State of Florida has begun the process of developing a comprehensive vocational student achievement program using newly developed competency examinations. The decision to move ahead resulted in part from several investigations into the use of such tools. This report describes the results of one of these preliminary studies.

Raymond Hill

Raymond S. Klein

ABSTRACT OF THE FINAL REPORT

TITLE OF PROJECT:	Validation of NOCTI Instruments Using Vocational Education Completers Florida Comprehensive High Schools
ORGANIZATION:	Florida State University
PROJECT DIRECTOR:	Dr. Raymond Hill
EXPENDITURES:	$5,000
DURATION OF PROJECT:	April 9, 1979 to June 30, 1980
PROJECT NUMBER:	DVE 9-1C11

PROBLEM

The purpose of this project was to explore the possibility of adopting National Vocational Teacher Competency examinations for use by completers of Vocational Programs in Comprehensive High Schools.

OBJECTIVES

To test the validity of the use of NOCTI written and performance examinations in selected occupations in order to see if it is feasible to extend their application.

PROCEDURE

NOCTI tests were administered at four Comprehensive High Schools in five occupational areas. The results were compared to national norms and to scores achieved of Florida Area Vocational-Technical Students.

RESULTS AND POTENTIAL UTILIZATION

The results of using NOCTI teachers examinations with Vocational Graduates from Comprehensive High Schools tended to be, in the main, consistent with earlier findings. These students as with AVTC students showed good achievement in terms of performance skills but low achievement in terms of related instruction. Although some of the NOCTI teacher examinations appear to be appropriate for use as student examination instruments, the researchers recommended support for the development of new occupational examinations for this student population.

INTRODUCTION

The purpose of this study was to see if Florida Vocational High completers have reached a level of competency that one expects of a job entry employee. The study involved students at four comprehensive high schools in Florida. The schools were Eau Gallie, Melbourne, Milton, Orange Park, and Southwest, Miami. These students were enrolled in five occupational areas:

PROGRAM AREAS

Architectural Drafting

Carpentry

Plumbing

Small Engine Repairs

Welding

This study was an extension of a project in which students used the same examinations in area vocational technical centers. In essence, the tests were being conducted to ascertain whether or not they would be appropriate for use in the Florida programs.

Using standard scores, the investigators were interested in testing if a sample of Florida Comprehensive High School completers could have come from the population of journeymen in their respective fields.

METHODOLOGY

Several major steps were necessary in order to obtain test data. These major steps included:

FIGURE I

1. Identification of program areas for study
2. Identification of comprehensive high schools offering one or more of the selected program areas
3. Identification of appropriate supervisors for each school or region
4. Conducting awareness meeting for supervisors
5. Selection of a sample from comprehensive high schools
6. Conducting awareness meeting for teachers
7. Conducting monitor workshop
8. Selecting test monitors for project
9. Selecting from population the sample by program area
10. Obtaining a test sample of program completers
11. Compiling test results
12. Validating test results
13. Recording findings
14. Compiling data
15. Submitting final report

The time required for conducting these steps is described in Figure II.

FIGURE II
Time Line for Activities

3 weeks	1.	Identify program areas for study
	2.	Identify comprehensive high schools offering one or more of the selected program areas
	3.	Identify appropriate supervisors for each school or region
	4.	Conduct awareness meeting for supervisors
	5.	Select sample from comprehensive high schools
2 weeks	6.	Conduct awareness meeting for teachers
	7.	Conduct monitor workshop
	8.	Select rest monitors for project
	9.	Select from population the sample, by program area
3 weeks	10.	Test sample of program completers*
	11.	Compile test results
	12.	Validate test results
4 weeks	13.	Record findings
	14.	Compile report
	15.	Submit final report

* NOTE: Because of the closing of the school year in the spring of 1979, the investigators lost their ability to test students. This required a postponement of the project for an additional year so that a new group of students could be trained and then examined.

FINDINGS AND ANALYSIS

A review of the scores achieved on the NOCTI Exams taken at four Florida High Schools in five occupations revealed that the students could have come from a population of journeymen based on their performance tests. However, with the exception of Small Engine Repair, their scores in the related information area appear weak. On four of the performance tests and one of the written exams the average students' scores were high enough to meet the Florida teacher standard. That is, not less than one standard deviation below the mean.

Table I, reports the standard mean scores for the occupations tested, where a score of 500 equals the mean and the measure of each 100 represents a standard deviation.

TABLE I

STANDARD MEAN SCORES

Occupation	#	Written	Performance
Architectural Drafting	5	290	543 *
Carpentry	5	140	325
Plumbing	9	235	579 *
Small Engine Repair	2	514 *	555 *
Welding	13	187	515 *

* Florida Standard Achieved

Table II reports the average scores by occupation.

TABLE II

AVERAGE SCORES

Occupation	#	Written %	Performance %
Arch. Drafting	5	48.6	82.5 *
Carpentry	5	39.6	29.0
Plumbing	9	38.6	87.9 *
Small Engine Repair	2	62.4	87.1 *
Welding	13	28.8	69.4 *

* Florida Standard Achieved

Table III reports the average per cent norms and standard deviation.

TABLE III

STANDARD MEAN SCORES

Occupation	#	Written %	SD	#	Performance	SD
Arch. Drafting	(38)	66.2	9.0	(38)	74.0	21.2
Carpentry	(459)	73.2	9.6	(600)	62.8	20.7
Plumbing	(87)	58.1	7.3	(82)	74.5	16.1
Small Engine Repair	(68)	72.7	7.5	(70)	77.7	15.8
Welding	(229)	60.7	10.1	(40)	66.0	19.0

A copy of the Report of Scores is attached. (See Exhibit I).

Table IV compares scores achieved in 1978 by Florida AVTC Students to those achieved by Florida High School Students in 1980. The sample is extremely small and caution is urged regarding making strong generalizations.

TABLE IV

COMPARISON OF STANDARD SCORES - 1978 - 1980

Occupation		#	AVTC	#	H.S.
Architectural Drafting	Written	(12)	350	(5)	290
	Performance	(11)	428	(5)	543
Carpentry	Written	(51)	245	(5)	140
	Performance	(50)	436	(5)	325
Plumbing	Written	(37)	290	(9)	235
	Performance	(36)	465	(9)	579
Small Engine Repairs	Written	(30)	245	(2)	555
	Performance	(20)	478	(2)	555
Welding	Written	(83)	340	(13)	187
	Performance	(82)	415	(13)	515

In the programs tested, the average performance scores achieved by students in comprehensive high schools on five exams exceeded by a substantial margin the average scores achieved by area vocational technical students on the same exams. A copy of the Report of Scores is reported in the appendix of this study.

CONCLUSION

This study set out to see if the NOCTI teacher examination might be used as part of a Florida Assessment program to evaluate the achievement of completers of comprehensive high schools in vocational and technical occupations. The findings revealed mixed results. They suggested that with the exception of the performance exam for carpentry, the other performance exams might work. On the other hand, the written exam for Small Engine seemed to be appropriate for the high school level, but all other written exams appeared to be too comprehensive for vocational preparatory students. Therefore, the State of Florida is cautioned against adapting these existing exams "carte blanche."

In general, the 1980 findings are consistent with an earlier study.[1] In 1978, students in selected AVTC in Florida also tended to show inadequate knowledge of related trade information, but adequate mastery in regard to performance skills needed for job entry. The 1980 sample was very small and only reflects scores of students in four high school settings. At this stage, these measures can only be considered suggestive.

1. Hill, Raymond, An Exemplary Project to field test NOCTI Examinations with completion from Area Vocational Technical Centers in Florida, DOE, Tallahassee, September 30, 1978.

RECOMMENDATIONS

As a result of this study, the investigators recommend that the Florida Department of Education consider:

1. A continuing review of the NOCTI Test Series to determine which of their products may be usable and/or
2. Developing a separate occupational test series aimed at assessing students in occupational programs.

APPENDIX A

REPORT OF SCORES

EXHIBIT I

Grant 18-1931-005 Occ. student testing 1980

NATIONAL OCCUPATIONAL COMPETENCY TESTING INSTITUTE

45 Colvin Avenue Albany, New York 12206 (518) 482-8864

DR. C. THOMAS OLIVO
Executive Director

in 1980 (Grant #18-1931-005

1978 FLORIDA STUDENT TESTING PROJECT

TO: Dr. Raymond Hill, Tampa, Florida

REPORT OF SCORES

RECEIVED JUN 23 1980

TEST CENTER A CODE 012 TEST PERIOD June 1980

Occupation	Candidate	Social Security Number	WRITTEN TEST Sub-Scores in Percent					PERFORMANCE TEST Sub-Scores in Percent		
			A	B	C	D	Total	Process	Product	Total
SMALL ENGINE REPAIR (2 Candidates)										
	1.	*----------	73.6	53.6	53.3	70.2	60.6%	86.8	89.0	87.6%
	2.	*----------	73.6	57.9	73.3	63.8	64.2	86.2	87.2	86.5

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Executive Director 10/20/80

NATIONAL OCCUPATIONAL COMPETENCY TESTING INSTITUTE

45 Colvin Avenue Albany, New York 12206 (518) 482-8864

DR. C. THOMAS OLIVO
Executive Director
Dr. Raymond Hill, Tampa, Florida

RECEIVED 19 1980

REPORT OF SCORES

TEST CENTER B CODE 012 TEST PERIOD May 1980

Occupation	Candidate	Social Security Number	WRITTEN TEST Sub-Scores in Percent A	B	C	D	Total	PERFORMANCE TEST Sub-Scores in Percent Process	Product	Total
ARCHITECTURAL DRAFTING (5 Candidates)										
	1.		73.5	43.7	51.9	43.7	53.3%	76.0	80.0	78.0%
	2.		64.7	37.5	42.3	37.5	45.3	83.0	80.0	81.2
	3.		61.7	37.5	44.2	46.8	47.3	86.0	78.3	81.7
	4.		58.8	37.5	44.2	50.0	46.6	88.0	86.6	87.1
	5.		64.7	43.7	48.0	46.8	50.6	90.0	80.0	84.4
CARPENTRY (5 Candidates)										
	1.		51.2	41.6	18.7	44.2	40.2	35.0	28.3	31.5
	2.		48.7	50.0	31.2	48.0	45.2	30.0	30.0	29.8
	3.		48.7	25.0	31.2	42.3	37.7	28.3	25.0	26.5
	4.		35.8	41.6	37.5	36.5	37.7	26.6	31.6	29.0
	5.		43.5	30.5	31.2	40.3	37.1	26.6	30.0	28.2

TOTAL CANDIDATES: 10

10

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06/14/80

NATIONAL OCCUPATIONAL COMPETENCY TESTING INSTITUTE

45 Colvin Avenue Albany, New York 12206 (518) 482-8864

DR. C. THOMAS OLIVO
Executive Director

RECEIVED JUL 19 1980

Dr. Raymond Hill
Tampa, Florida

REPORT OF SCORES

TEST CENTER C CODE 012 TEST PERIOD May 1980

Occupation / Candidate	Social Security Number	WRITTEN TEST Sub-Scores in Percent A	B	C	D	Total	PERFORMANCE TEST Sub-Scores in Percent Process	Product	Total
PLUMBING (9 Candidates)									
1.		67.4	66.6	61.9	44.4	61.6%	96.2	100.0	97.6%
2.		39.5	54.1	57.1	27.7	41.3	88.7	80.0	85.6
3.		27.6	37.5	14.2	33.3	28.4	68.7	62.2	66.4
4.		29.0	29.1	38.0	16.6	27.5	87.5	84.4	86.4
5.		43.0	41.6	47.6	30.5	40.7	90.0	82.2	87.2
6.		34.9	33.3	42.8	38.8	36.5	90.0	84.4	88.0
7.		39.5	58.3	42.8	33.3	41.3	90.0	86.6	88.8
8.		33.7	45.8	19.0	41.6	35.3	86.2	93.3	88.8
9.		32.5	29.1	52.3	33.3	34.7	90.0	100.0	93.6

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[signature] [illegible] Executive Director 06/14/80

NATIONAL OCCUPATIONAL COMPETENCY TESTING INSTITUTE

45 Colvin Avenue Albany, New York 12206 (518) 482-8864

DR. C. THOMAS OLIVO
Executive Director

1978 FLORIDA STUDENT TESTING PROJECT

TO: Dr. Raymond Hill, Tampa, Florida

REPORT OF SCORES

RECEIVED JUN 16 1980

TEST CENTER D CODE 012 TEST PERIOD May 1980

Occupation / Candidate	Social Security Number	WRITTEN TEST Sub-Scores in Percent					PERFORMANCE TEST Sub-Scores in Percent		
		A	B	C	D	Total	Process	Product	Total
WELDING (13 Candidates)									
1.		31.6	40.0	11.4	32.0	29.0%	91.5	87.0	88.9%
2.		28.3	14.2	28.5	24.0	24.5	87.6	21.4	49.5
3.		30.0	37.1	40.0	28.0	33.5	96.9	32.7	59.9
4.		33.3	48.5	14.2	44.0	34.1	100.0	83.0	90.3
5.		28.3	20.0	17.1	20.0	22.5	100.0	61.0	77.5
6.		18.3	25.7	11.4	24.0	24.5	97.6	62.7	77.5
7.		31.6	22.8	34.2	32.0	30.3	100.0	66.1	80.5
8.		46.6	42.8	28.5	40.0	40.6	100.0	64.9	79.8
9.		26.6	20.0	31.4	20.0	25.1	97.6	25.9	56.3
10.		25.0	22.8	17.1	16.0	21.2	100.0	77.9	87.3
11.		40.0	22.8	42.8	32.0	35.4	97.6	33.8	60.9
12.		41.6	25.7	25.7	12.0	29.6	73.0	28.8	47.5
13.		28.3	20.0	17.1	24.0	23.8	73.0	25.9	45.9

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Executive Director 06/12/80

BIBLIOGRAPHY

Hill, Raymond, An Exemplary Project to field test NOCTI Examinations with completion from Area Vocational Technical Centers in Florida, DOE, Tallahassee, September 30, 1978.

Klein, Raymond, "An Analysis of Selected Factors related to the Use of NOCTI Exams", Journal of Research in Vocational Education, April, 1980.

Turbel, L.S., and Klein, R.S., Cumulative National Norms 1975-1979, NOCTI, Albany, New York.